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Prevalence of Mental Health Distresses Among Students at the Kenya Medical Training College, Nairobi Campus

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Abstract

The study investigated the prevalence of Mental Health Distresses Among Students at the Kenya Medical Training College, Nairobi Campus. An institutional-based cross-sectional study was used with 355 students from different departments. Proportion of student participants based on course of study showed that 61 (18.2%) were from nursing, 46 (13.7%) from health records, 61 (12.2%) from clinical medicine, 31 (9.3%) from medical laboratory technology, 30 (9.0%) for pharmacy and radiology respectively and 96 (28.7%) which constitute the majority falling into other medical courses in the university. For the religious affiliation, Christianity, 247 (73.7%), Islam, 43 (12.8%), and other religions, 45 (13.4%). Finally, males constituted 149 (44.5%) and females, 186 (55.5%). Of the 335 participants, 183 (54.6%) fell within the normal range of depression and others had either mild, 143 (42.7%) or moderate, 9(2.7%) depression. Majority of the participants had anxiety ranging from mild, 131 (39.1%, moderate, 93 (27.8%), severe, 4 (1.2%) and only 107 (31.9%) who had their anxiety within normal range. For stress, none of the participants had within normal range and severe range but those with mild stress level constitute 333 (99.4%) followed by moderate, 2 (.6%). The findings of the study corroborated other findings that showed the increasing mental health distress prevalence among medical students. Measures should be put in place to help medical students at the Kenya Medical Training College, Nairobi Campus to manage their mental health distresses which will help in improving the student mental health status and health care delivery initiatives in Kenya.

Keywords: *Anxiety, Depression, Distress, Stress.*

Introduction

Mental distress continues to remain a public health concern among medical students in tertiary learning institutions. Mental distress, if not properly managed during the period of study does not only affect the mental health capacity of the student but also affects them later during public health practice. The distress is associated with severe consequences including lack of empathy for their patients, committing medical errors, and suicidal ideations and attempts [1]. Mental distress by definition constitutes the unique explained discomfort and destabilization of the emotional state experienced by an individual in response to a specific stressor or demand that results in harm, either temporary or permanent, to the person. This unpleasant mental or emotional state is manifested in different forms including anxiety, depressive and somatic symptoms such as sleep problems, headache, and backache [2].

Studies on mental distress among medical students have indicated a high prevalence of stress, depression, and anxiety, with levels

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consistently higher compared to the general population [3]. Students undergoing different categories of medical related programs in Kenya are expected to be highly competent and capable of advancing public health agenda both at clinical, community and research related disciplines. In doing so, they achieve high levels of patient-centered care. However, due to the many years of rigorous interaction with their curriculum coupled with the stressful hassles of life, the students are exposed to life stressors that affect their mental well-being.

Studies across the world have also revealed high rates of depression, anxiety, and stress among medical students [4, 5]. A systematic review carried out on 40 published studies among the US and Canadian medical students also demonstrated that mental distress was significantly higher among college students than the general population [5]. Another systematic review conducted on 16 identified studies outside North America also revealed the prevalence of mental distress among medical students ranging between 12.2% and 96.7% [6, 7]. A study among Egyptian medical students also revealed a significant high Positive Symptom Distress Index (PSDI) of 30.1% [7]. More still, an alternative systematic study conducted in Nigeria also revealed that mental distress was much more elaborated in 25.2% of medical students [8], and in Ethiopia, the prevalence of mental distress among medical students ranged between 30% and 35.2% [9].

Medical students are at a risk of developing mental distress conditions as they must deal with daily stressors and demands specific to professional training such as the new information flow and input overload, examinations, chances of failure, lack of leisure time, workload, relationships with peers, and career choices [7]. Moreover, it has been shown by research that being female sex, coming from a rural background, having a history of substance use, high academic demands, financial problems, and apprehension about the future makes one vulnerable to developing mental health distress [11, 12]. A study by [13] in Kenya, found 61.6% of the medical students to have moderate stress. Mental health distress is also well pronounced among health professionals with high stress and pressured jobs. The development and progression of mental health challenges like depression, anxiety and stress follows a diathesis-stress model, relying on external stressors, the individual's response to those stressors, as well as the individual's genetics [13]. Additionally, medical students also experience many stressors and are therefore at high risk of suffering from depression, anxiety and stress. The stressors during their training can be divided into three categories: situational, personal, and professional [14]. Situational stressors include factors such as lack of sleep, huge responsibilities and unrealistic expectations, lack of support from health professionals, long hours, heavy workloads, many patients, as well as below optimal learning conditions [15]. Personal stressors include aspects to do with families that are a source of conflict and stress, limited free time to relax, financial difficulties, psychosocial concerns, and inadequate coping skills [16, 8]. Professional stressors include difficult patients and cases, responsibility for patients, supervision of students, information overload, and career planning [15, 7]. Factors such as stress, substance use, social support, and the educational environment each influence the wellbeing of medical students and their patients [13].

It is upon this background, therefore that this research sought to investigate the prevalence of mental health concerns (distress) amongst medical students in Kenya to provide the needed information to guide the direction of care and further understanding of the burden of mental distress in health care systems.

Though there are a handful of studies conducted in Kenya using medical students in view of the mental health challenges, there is none that was conducted, to the best knowledge

of the researchers that involves the medical training college, Nairobi Campus, Kenya. This study is therefore aimed at investigating the prevalence of mental health challenges among students at the medical training college, Nairobi Campus, Kenya. The findings are envisaged to aid the enhancement of the quality of life of the students and bolster health care services in Kenya.

Materials and Methods

Study Design, Setting, and Period

The institution-based cross-sectional study was conducted at the medical training college, Nairobi Campus, Kenya from August through September 2024. Situated about three kilometers on the northern side of Nairobi city, Kenya, the campus, stand on a 20-acre piece of land, opposite Kenyatta National Hospital, along Old Mbagathi Road. With over 41,000 students attending 76 medical courses, which makes the biggest single contribution to the health sector in Kenya and is currently producing more than 12,000 graduates every year for both the Kenyan public and private health sectors, accounting for more than 85 percent of the hospitals' workforce.

Participants

The study was conducted among medical training college students, Nairobi Campus, Kenya. The Medical students who were academically active and present on the campus during the data collection period were all considered as study population whereas those medical students who were not comfortable to respond the online questionnaires as well as those who declined to participate were excluded from the study. Only those medical students who met the pre-defined criteria and gave virtual consent were voluntarily enrolled in the study. The participants were considered autonomous and therefore were free to stop participation at anytime of their choice.

Sample Size and Sampling Procedure

The study sample size was obtained through a single population proportion by taking the prevalence of mental distress 61.6% [13], with; a 5% margin of error, 95% confidence, and assuming 10% non-response rate whereby the final sample size of 355 was determined. The students were further stratified based on their courses of study such as clinical medicine, pharmacy, nursing, etc. As data obtained from the University website indicated that the total number of medical students during data collection was over 41,000 students. Then proportional allocation of study subjects for each stratum was based on convenience sampling.

Data Collection Tool and Procedure

Data was collected using an English version of a self-administered questionnaire which had six parts. The first part included the socio-demographic characteristics of participants. The second part of the questionnaire assessed Depression, Anxiety and Stress. The standard, English version of the 21-item Depression, Anxiety, and Stress Score (DASS-21) was used to assess participants with depressive, anxiety, and stress related symptoms. The respondents were instructed to score from 0 (absence of symptoms) to 3 (symptoms appeared most of the time) for each item. At the end of the questionnaire, the scores were aggregated based on the three domains that the item represented and multiplied by two to obtain 42 as a way of tools standardization. The cut-off points were set at ≥10 for depression, ≥8 for anxiety, and ≥15 for stress. The validation was conducted and the psychometric properties showed reliability co-efficient of .71, .80 and .73 depression, anxiety and stress respectively using a pilot study with 109 medical students.

Data Quality Control

To assure the data quality, the data collectors and supervisors were trained prior to the data collection exercise using the online self-

administered tool. Prior to the actual data collection exercise, the questionnaire was pre-tested on 5% of the total sample size of 15 students among the University medical students at the University of Nairobi for all aspects including accuracy, specificity and wording to avoid ambiguity. The collected data were checked for completeness before the actual data entry and incomplete data were discarded.

Data Processing and Analysis

Data was entered into Microsoft Excel and cleaned, coded, and analyzed using Statistical Packages for Social Sciences (SPSS v23). The data was analyzed to generate descriptive statistics: frequency and percentages. Chi Square and Binary logistic regression were used to analyze the data. Variables were checked using bi-variable logistic regression to obtain the variables which had association with dependent variables and then variables which had *p*-value of less than 0.25 were entered into multi-variable logistic regressions for further analysis. Adjusted odds ratio with 95% CI was computed for variables having a *p*-value less than 0.05 in multi-variable logistic regression model and considered as significantly associated with the dependent variable.

Results

Descriptive Presentation of Data

Table 1. Socio-Demographic Presentation of Participants

VARIABLE (S) (n=335)		**Frequency**	**Percent %**
Course of Study	Nursing	61	18.2
	Pharmacy	30	9.0
	Clinical Medicine	41	12.2
	Health Records	46	13.7
	Medical Lab Tech	31	9.3
	Radiology	30	9.0
	Others	96	28.7
Time of Program	Day Program	333	99.4
	Weekend Program	2	.6
Age	Prefer not to say	3	.9
	14-24 years	299	89.3
	25-31 Years	32	9.6
	40 years and above	1	.3
Residence	Within College Hostels	280	83.6
	Away from the hostel	38	11.3
	Near private hostel	6	1.8
	Prefer not to say	11	3.3
Religion	Christianity	247	73.7
	Islam	43	12.8
	Others	45	13.4
Gender	Male	149	44.5
	Female	186	55.5

Source: Primary Data

Table 1 above shows that 335 student respondents participated in this study with 61 (18.2%) from nursing, 46 (13.7%) from health records, 61 (12.2%) from clinical medicine, 31 (9.3%) from medical laboratory technology, 30 (9.0%) for pharmacy and radiology

respectively and 96 (28.7%) which constitute the majority falling into other medical courses in the university. Majority of the participants were for day program (333, 99.0%) with only 2 (.6%) on weekend programs and 299 (89.3%) fall into 14-24 years with only 1 person who is higher than 40 years. For the mode of residency, majority of the students resides within the college hostels, 280 (83.6%) followed by those who stay away from the hostel, 38 (11.3%), 6 (1.8%) near private hostel and 11 (3.3%) who preferred not to respond. For the religious affiliation, Christianity, 247 (73.7%), Islam, 43 (12.8%), and other religions, 45 (13.4%). Finally, males constituted 149 (44.5%) and females, 186 (55.5%).

Prevalence of Mental Health Distresses Among Study Participants

Table 2. Frequency and Percentages of Mental Health Distresses Levels (n=335)

		Frequency	Percent (%)
Depression	Normal	183	54.6
	Mild	143	42.7
	Moderate	9	2.7
Anxiety	Normal	107	31.9
	Mild	131	39.1
	Moderate	93	27.8
	Severe	4	1.2
Stress	Mild	333	99.4
	Moderate	2	.6

Source: Primary Data

Table 2 above shows that out of the 335 participants, 183 (54.6%) fall within the normal range of depression and others have either mild, 143 (42.7%) or moderate, 9(2.7%) depression with none showing symptoms of severe depression. Majority of the participants had anxiety ranging from mild, 131 (39.1%, moderate, 93 (27.8%), severe, 4 (1.2%) and only 107 (31.9%) who had their anxiety within normal range. For stress, none of the participants had within normal range and severe range but those with mild stress level constitute 333 (99.4%) followed by moderate, 2 (0.6%).

Association of Depression and Socio-Demographic Factors

Table 3. Association of Prevalence of Depression and Socio-Demographic Factors

		Depression				
		No	**Yes**	**X**	**DF**	**Sig.**
Gender	Male	83 (55.7%)	66 (44.3%)	.126a	1	.723
	Female	100 (53.8%)	86 (46.2%)			
Religion	Christianity	136 (55.1%)	111 (44.9%)	.072a	2	.965
	Islam	23 (53.5%)	20 (46.5%)			
	Others	24 (53.3)	21 (46.7%)			
Age	Prefer Not to say	2 (66.7%)	1 (33.3%)	1.371a	3	.712
	14-24 Years	161 (53.8%)	138 (46.2%)			
	25-31 Years	19 (59.4%)	13 (40.6%)			
	40 years and above	1 (100.0%)	0 (0.0%)			
Course of Study	Nursing	36 (59.0%)	25 (41.0%)	8.738a	6	.189
	Pharmacy	22 (73.3%)	8 (26.7%)			

	Clinical Medicine	23 (56.1%)	18 (43.9%)			
	Health Records	26 (56.5%)	20 (43.5%)			
	Medical Lab Tech	12 (38.7%)	19 (61.3%)			
	Radiology	15 (50.0%)	15 (50.0%)			
	Others	49 (51.0%)	47 (49.0%)			
Residence	Within College Hostels	152 (54.3%)	128 (45.7%)	1.580a	3	.664
	Away from the hostel	20 (52.6%)	18 (47.4%)			
	Near private hostel	3 (50.0%)	3 (50.0%)			
	Prefer not to say	8 (72.7%)	3 (27.3%)			

Source: Primary Data

Table 3 showed that none of the sociodemographic predictor variables are significantly associated with the outcome variable of depression (p>.05).

Association of Anxiety and Socio-Demographic Factors

Table 4. Association of Prevalence of Anxiety and Socio-Demographic Factors

		Anxiety				
		No	**Yes**	**X**	**DF**	**Sig.**
Gender	Male	57 (38.3%)	92 (61.7%)	4.923a`	1	.018
	Female	50 (26.9%)	136 (73.1%)			
Religion	Christianity	79 (32.0%)	168 (68.0%)	.022a	2	.989
	Islam	14 (32.6%)	29 (67.4%)			
	Others	14 (31.1%)	31 (68.9%)			
Age	Prefer Not to say	0 (0.0%)	3 (100.0%)	2.775a	3	.428
	14-24 Years	99 (33.1%)	200 (66.9%)			
	25-31 Years	8 (25.0%)	24 (75.0%)			
	40 years and above	0 (0.0%)	1 (100.0%)			
Course of Study	Nursing	21 (34.4%)	40 (65.6%)	4.426a	6	.619
	Pharmacy	13 (43.3%)	17 (56.7%)			
	Clinical Medicine	14 (34.1%)	27 (65.9%)			
	Health Records	12 (26.1%)	34 (73.9%)			
	Medical Lab Tech	8 (25.8%)	23 (74.2%)			
	Radiology	7 (23.3%)	23 (76.7%)			
	Others	32 (33.3%)	64 (66.7%)			
Residence	Within College Hostels	94 (33.6%)	186 (66.4%)	4.273a	3	.233
	Away from the hostel	8 (21.1%)	30 (78.9%)			
	Near private hostel	3 (50.0%)	3 (50.0%)			
	Prefer not to say	2 (18.2%)	9 (81.8%)			

Source: Primary Data

Table 4 showed that gender and risk factors from the predictor variables are significantly associated with the outcome variable of anxiety ($p<.05$). There were more females with anxiety compared to males, 136 (73.1%), and risk factors had peer pressure 35 (81.4%) being the highest predictive variable on anxiety among the participants.

Association of Stress and Socio-Demographic Factors

Table 5. Association of Prevalence of Stress and Socio-Demographic Factors

		Stress				
		No	**Yes**	**X**	**DF**	**Sig.**
Gender	Male	149 (100.0%)	0 (0.0%)	1.612a	1	.308
	Female	184 (98.9%)	2 (1.1%)			
Religion	Christianity	246 (99.6%)	1 (0.4%)	2.415a	2	.299
	Islam	43 (100.0%)	0 (0.0%)			
	Others	44 (97.8%)	1 (2.2%)			
Age	Prefer Not to say	3 (100.0%)	0 (0.0%)	.242a	3	.970
	14-24 Years	297 (99.3%)	2 (0.7%)			
	25-31 Years	32 (100.0%)	0 (0.0%)			
	40 years and above	1 (100.0%)	0 (0.0%)			
Course of Study	Nursing	59 (96.7%)	2 (3.3%)	.242a	3	.970
	Pharmacy	30 (100.0%)	0 (0.0%)			
	Clinical Medicine	41 (100.0%)	0 (0.0%)			
	Health Records	46 (100.0%)	0 (0.0%)			
	Medical Lab Tech	31 (100.0%)	0 (0.0%)			
	Radiology	30 (100.0%)	0 (0.0%)			
	Others	96 (100.0%)	0 (0.0%)			
Residence	Within College Hostels	280 (100.0%)	0 (0.0%)	15.725a	3	.001
	Away from the hostel	36 (94.7%)	2 (5.3%)			
	Near private hostel	6 (100.0%)	0 (0.0%)			
	Prefer not to say	11 (100.0%)	0 (0.0%)			

Source: Primary Data

Table 5 showed that none of the predictor variables are significantly associated with the outcome variable of stress ($p>.05$) apart from residence ($p<.05$) with medical students who stay away from hostel having more stress compared to others.

Discussion

The study investigated the prevalence of mental health distresses among medical students at the Kenya Medical Training College, Nairobi Campus which covers areas of mental distress such as depression, anxiety and stress. The findings showed that medical school is in fact, a high pressure and overwhelming environment with prevalence of ranging from mild, 143 (42.7%) to moderate, 9(2.7%) depression and majority of the participants had anxiety ranging from mild, 131 (39.1%, moderate, 93 (27.8%), severe, 4 (1.2%) and with stress levels of mild 333 (99.4%) followed by moderate, 2 (.6%). The current study revealed that the prevalence of mental distresses found at 45.4% for depression, 68.1% for anxiety and 100.0% for stress which

confirms the increasing prevalence of mental health distresses across Medical Students not only in Kenya but across the world [12, 11], 2014). In Kenya, a very recent study showed increasing prevalence of mental distress among students, one among the few studies conducted in a university in Nairobi Region found the prevalence of depression to be 35.7% [17].

Similar studies carried out in institutions of learning in Kenya found high return rates of up to 100% [18] while that from a medical University in Karachi was 90% [19]. The reported higher prevalence of anxiety in the present study as against the higher prevalence of depression as reported in a similar study in Kenya by [20] probably overstates the case for anxiety and understates for depression. Anxiety symptoms are possibly more likely to precede depressive symptoms than the reverse as stated by Leadbeater [21, 20] in Kenya in a study that determine comorbidity of depression and anxiety among students at the Kenya Medical Training College, found that 18.4% and 20.2% of group A and B respectively had moderate depression while 48.5% and 45.8% respectively had severe depression. The equivalents for anxiety in groups A and B were 24.4% and 23.6% for moderate anxiety and 32.1% and 31.5% for severe anxiety. There was a higher rate of depression and anxiety in the second year; with a statistically significant association between depression and anxiety and the year of study in the two groups. Results on a study on prevalence of depression and anxiety among medical college students in a Pakistan University found that 70% of the respondents suffered anxiety and depression which is consistent with what was found in other similar studies [18-20].

Medical students are in Kenya are likely exposed. The researchers in these studies concluded that new life styles, financial challenges, academic challenges which posed a challenge to them and likely to precipitate them to developing anxiety, depression and stress. Similar studies explained that the high levels of severe depression and anxiety found among student respondents could be explained by the fact that students have to deal with unique stressors such as new lifestyles and cultures, new friends and exposure to alternative ways of thinking. This is because these encounters required them to develop new strategies to cope with the new situations as they progressed in their professional training and adjust to the new lifestyles different from their socializations. Those who could not cope were likely to struggle and become susceptible to anxiety and/or depression [22].

In a similar study to investigate prevalence of depression, anxiety and their associated factors.among medical students in Karachi, a high prevalence, 70%, of anxiety and depression was found among the respondents. Results indicated that the precipitating causes were not exclusively academic but included psycho-stressors like loss, relationship problems, residence and substance abuse among others [23].

The increasing prevalence of mental distress among medical students is a concerning issue that has garnered significant attention in recent years. With a systematic review of 54 studies that found that 27.2% of medical students experienced depression, 33.5% experienced anxiety, and 11.1% experienced suicidal ideation [23], and another study which found 4,897 medical students from 49 medical schools in the United States alone reporting that 63.4% experienced burnout, 42.3% experienced depression, and 11.3% experienced suicidal ideation [24], the findings of the prevalence of mental distress among Kenyan Medical students corroborates other literatures of the increasing trends in mental distress.

Depression, anxiety, and stress are debilitating conditions that can impairs the functioning of the medical students and if left unmanaged, they affect their general functioning which makes it hard for them to perform everyday tasks completely,

competently and efficiently as well as their general well-being, productivity and quality of life in relation to themselves and others [25, 26]. The average age of onset for many mental health conditions is the typical college age of 18-24 years which is contributed to by the many first encounters in life with common stressors including adjustment to college environment, educational debt, heavy workload, sleep deprivation, difficult patients, poor learning environments, financial concerns, information overload and career planning, new friendships, distance from parents, new cultures and alternative ways of thinking [20, 27, 28, 30].

In other parts of the world, their findings are consistent on the increasing prevalence of psychological distress among medical students. Anxiety was the most prevalent psychological distress among medical students in West Indies University, Saint Augustine, with 63% of them having anxiety symptoms [3]. Depression was found to be the second most common psychological distress, with a prevalence of 51%, while 48% of the students suffered from stress. Medical students face tremendous pressure because of the enormous workload and academic demands that are required during their long course of studying. The continuous and challenging learning experiences that students come across during medical training may, in some cases, result in psychological distress among students. Psychological distresses among medical students have a negative impact on students' academic and personal lives, such as increased drop-out rates from medical school, poor academic performance, broken relationships, loneliness, poor sleep, substance abuse, and suicide. This finding is further corroborated by findings across the world [3, 29, 27].

These stressors can lead to catastrophic consequences on the medical students as found in this study such as anxiety, depression, and stress. While the existence of depression, anxiety and stress cannot be completely wipe out in the lives of medical students undertaking medical training, it is crucial to put in place measures that reduces the effects to the barest minimum [30]. These can only be achieved through early screening and treatment. Studies have documented that at the start of medical school, medical students have mental health similar to their nonmedical peers, however, students' mental health worsens during the medical training [31], as such, a need for urgent intervention, so as to produce a crop of medical professionals that will be able to meet the increasing health demands in Kenya and across the world.

Conclusion

The study on the prevalence of mental health distresses among students at the Kenya Medical Training College, Nairobi Campus, reveals alarming rates of mental health issues. Key findings included the high prevalence of mental health distresses with risk factors including academic pressure, depression, peer pressure, family problems, financial pressure, break-ups, drug addiction, and medical conditions. Also, being a female student, was also found to make the students more vulnerable to developing mental distress. The findings therefore call for an urgent need for institutional support and interventions that will address academic and socio-economic factors as well as the need for mental health education, awareness, and stigma reduction. Learning environments are expected to made conducive in such a way that students can cope and thrive in their training to become healthcare professionals that will help in meeting the health needs of Kenyans, Africa, and the world at large. That can only be made possible when the students are able to manage the daily stresses that comes from the pressure of the medical school. As the saying always go, there is no health without mental health, as such, the need to prioritize the health of healthcare providers in-training who will contribute to the growth of the nation. Mental health is a critical aspect of overall well-being. Addressing mental health distresses among

students is essential for their academic success, personal growth, and future professional endeavors.

Recommendation

Based on the outcome of this study, some recommendations to address mental health distresses among students at the Kenya Medical Training College, Nairobi Campus were made as follows:

1. Medical schools should ensure that mental health units or counseling center are established on campus to help in early identification and intervention of mental health distresses among medical students. This will also assist in the development and implementation of stress management programs and provide mental health education and awareness campaigns in the school environment.
2. A review and adjustment of academic workload and expectations should be made where flexible academic scheduling for students is made possible.
3. There is an urgent need for peer support groups and mentorship programs to assist students to build resilience.

Ethical Approvals and Consent

Ethical approval was obtained from the Texila American University Ethics and Review Committee (ERC), Jaramogi Oginga Odinga University of Science and Technology (JOOUST) and The Kenya's National Council for Science and Innovation (NACOSTI). All participants gave written informed consent before answering the questionnaires. All methods including participant recruitment and consent taking, data collection, data handling, and analysis were performed in accordance with relevant guidelines and regulations.

Availability of Data and Materials

The datasets generated and/or analyzed during the current study are not publicly available because no permission had been granted from participants and the college students (where the study was conducted) to publish datasets publicly. The authors also intend to further explore the data to generate more insights/findings and publish those new insights/findings. The data are available from the corresponding author on reasonable request.

Competing Interests

The authors declare that they have no competing interests.

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